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Lineman

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U. S. DEPARTMENT OF AGRICULTURE

RURAL ELECTRIFICATION ADMINISTRATION - U. S. DEPARTMENT OF AGRICULTURE



POLE TOP RESUSCITATION SUCCESSFUL

New Safety Programs Start

During the past 6 months, Montana, New Mexico and Arizona have started Statewide safety programs under the supervision of a full time Safety and Job Training Instructor.

Each program is under the direction of an Advisory Committee composed of system manager, directors and line foreman which cooperates with the State Department of Trade and Industrial Education. Job Training and Safety Instructors for these States are: Carl Smith, Montana; Russell E. Dew, New Mexico; and D. F. Morris, Arizona.

The following men have been hired to fill vacancies: A. L. Chantry, Nebraska; W. W. Black, Florida; and Joe Chambers, Louisiana.

Washington, Oregon and Idaho have set up committees to work out the details of a safety and job training program for each state. State

(Continued on Page 3)

Tree Trimming Can Be Poisonous

BY

George MacDonald
Staff Representative
National Safety Council

An electrical company was trimming trees along a line which passed a pasture. The brush was allowed to lie where it fell alongside the pasture fence. Cattle in the pasture ate the leaves and chewed portions of the bark from some of the limbs. In a very short time these cattle were dead. Cause: Hydrocyanic poisoning.

Investigation showed that there are several varieties of wild cherry trees. Choke cherry is one variety. This family of trees is widely distributed throughout the United States. Certain chemicals contained within the bark, leaves and other parts of these trees unite under certain conditions and form a highly poisonous chemical - hydrocyanic

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The existing line was single phase #8A copperweld copper. It was to be changed to 3 phase #4A CWC. The linemen had been changing out poles and adding crossarms and hardware to the line coming from the southeast, and had been killing portions of it when major changes were made. When the highway was reached, it was decided they could add the crossarms or change out poles without killing the line when only the regular pole top assemblies existed.

One lineman had assisted in changing out pole #2. He climbed pole #5, untied the neutral wire and let it down. He then moved around the pole to obtain a better position for installing the hot line equipment; his right shoulder came in contact with the 7200 volt phase wire; his left foot was against the ground wire. He was knocked unconscious. His hooks came out of the pole, but he was held by his safety strap. Another lineman climbed the pole, and after a few minutes of pole top resuscitation, the lineman regained consciousness.

At the hospital, it was discovered that third degree burns were received on the right shoulder and second and third degree burns on left foot and left forearm. He is recovering slowly, but a portion of his left foot will be removed.

Discussion Points.

1. What part did "position" play in this accident.
2. Was it necessary to climb that high to install the hot line equipment for raising the conductor above the insulator?
3. Is the following a safe work practice: Never take a working position from which you can reach, touch, fall into or across or, unthinkingly, raise into or contact an energized conductor or part?
4. Is the sole purpose of live line tools to secure "position" for the workman?

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Ralph A. C. Hill, Editor

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POWER PLANT FATALITY

The job to be done was to lift a dirty 1,000 pound oil filter from the basement of a diesel power plant through a man-hole up to the first floor. The filter was located between two engine bases and to one side of the opening in the first floor. Therefore, it was impossible to drop a traveling crane cable directly through to the filter.

The procedure followed was to lift the basket and container above the filter housing shell with a hand coffering hoist hooked onto the basement ceiling. A 2 X 5 timber was then placed across the top of the filter housing and the filter basket and container lowered to rest on this timber. The hook of the traveling crane on the first floor was then dropped through the man-hole. A one ton electric hoist was then attached to this hook and its cable attached to the oil filter. By "taking up" on the one ton electric hoist and paying out on the coffering hoist the filter was jockeyed into position to a point directly below the man-hole. The traveling crane above then raised it to the first floor.

At the time of the accident, the men had completed the above described work and the filter was suspended about eighteen inches above the main floor and slightly to one side of the man-hole.

Before moving the filter across the engine room floor to dump it into the yard it was necessary to insert the cork into the center tube of the filter cartridge. Otherwise, dirty oil would have spilled onto the floor.

To place the cork the victim lay on his back on the floor and reached under the filter basket. In this position his head was part way under the edge of the basket. While in this position the filter fell and crushed the man placing the cork. Since it was very near the man-hole through which it had been lifted, it fell back through this opening and into the basement. As it passed through the opening, it crushed the hand of a workman who was grasping the man-hole edge.

The accident was caused by the shearing of a wire in the cotter key hole of one of the pins in the lifting basket. This wire was apparently sheared during the "jockeying" required to lift the filter from the top of the wooden timber and across to a position directly under the man-hole.

Hard Luck Harry



"THIS IS ONE TIME TH' BURNS
WERENT ON TH' HANDS"

TREE TRIMMING (continued)

acid. This chemical has the characteristic odor of almond. The poison chemical is formed in wilting leaves, bark, etc., of these trees. Prunings from such trees should be removed at once and disposed of in such manner that livestock cannot eat the leaves or bark.

This poison is formed under certain circumstances other than tree trimming. Drouth, frost, bruising trampling and other conditions which cause injury or stunt the growth of these trees may bring about the chemical changes that may cause lethal quantities of this poison to be present in uncut trees and brush. It is well to know these facts, too, even though the conditions which cause them are beyond the control and responsibility of the tree trimmer.

Discussion Points

1. Are power plant accidents most likely to be mechanical or electrical?
2. Is it safe to get under any heavy object supported by cables or ropes, only?
3. If it is required to get under such an object should provisions be made to lower it to rest on a suitable support?
4. Which will stand the greatest shearing action, the nut of a bolt or the cotter key of a pin? (Continued on Page 3)

Vocational assistance has been assured and these programs should be in operation in the very near future. Program operation in the Pacific Northwest will increase the total State safety and job training programs to 32. In these 32 states are located 610,000 miles of energized line, or 95% of the total on REA-financed lines, and 2,074,000 consumers or 95.6% of the total connected consumers.

The States of Maine, New Hampshire and Vermont have appointed a committee to seek ways and means of conducting a safety and job training program in the New England area.

Wayne Black has been hired to fill the safety and job training position in Florida. Wayne spent ten days at REA headquarters obtaining program training prior to reporting for duty.

POWER PLANT (continued)

5. Should cotter keys be relied upon to withstand a shearing force, or should they be used only to prevent vibration from moving a nut or pin out of place?
6. When cotter keys are used, should they be of the proper size to fit "snugly" in the pin hole?
7. Why were cotter keys designed with a loop on one end and a split body? Does this give 3-way protection against the cotter key coming out after it is properly installed?
8. Is a piece of wire ever a satisfactory substitute for a cotter key?
9. Should manufacturers be more careful in designing equipment to provide bolts and nuts in place of pins and cotter keys where a shearing force can be exerted on the cotter key necessary to hold the pin in place?

BEWARE OF TERMITES

A lineman once climbed what seemed to be a sound pole and worked a half hour before it broke and brought him to the ground. Termites had worked up through the center of the pole and eaten away the inside until the pole was just a shell. The outer surface held the strain until the man changed position on the pole top and leaned back in his belt.

Developing the habit now of inspecting each pole before climbing will pay dividends in the years to come.

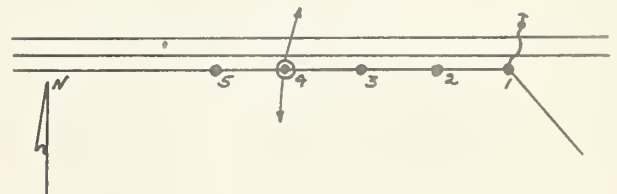
Full cooperation between the design electrical engineers and the men who construct, operate and maintain the rural lines is resulting in safer more practical construction for rural systems. The new specification G65-1½R is the result of this type of cooperation. In relocating the transformer to obtain climbing space free from the ground wire the transformer lead was increased in length. This required an insulator support between the transformer bushing and the primary conductor.

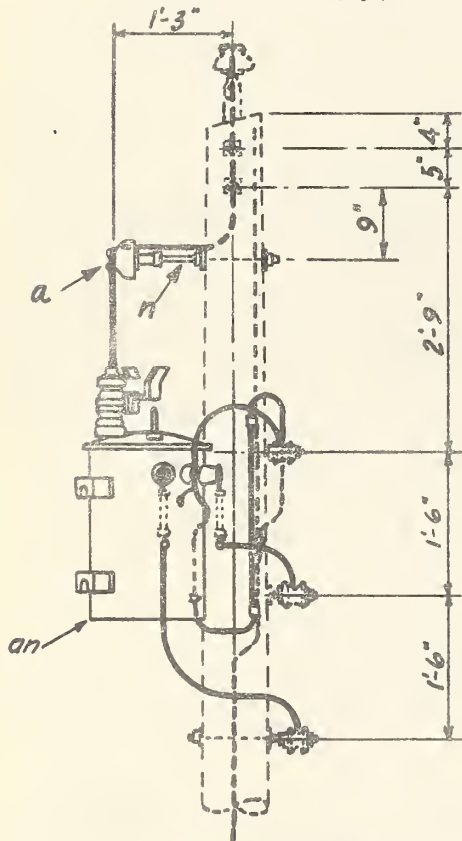
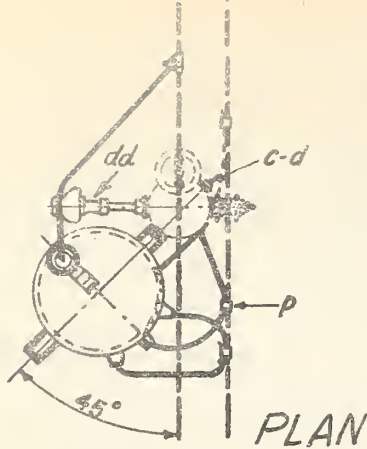
The original suggestion was to locate the pin between the two bolts holding the ridge pin. After discussion by the engineers of Technical Standards Committee A and Field comments from E. H. Stovall, Mississippi Safety and Job Training Instructor, and D. B. Bidle, Illinois Safety and Job Training Instructor, this stand-off pin assembly was relocated as in the new specification G65-1½R. This location is 18 inches below the top of the pole and approximately two feet below the primary conductor. The hole can be bored for the insulator with a greater degree of safety for the lineman in the event that he does not de-energize and ground the line.

POLE TOP (continued)

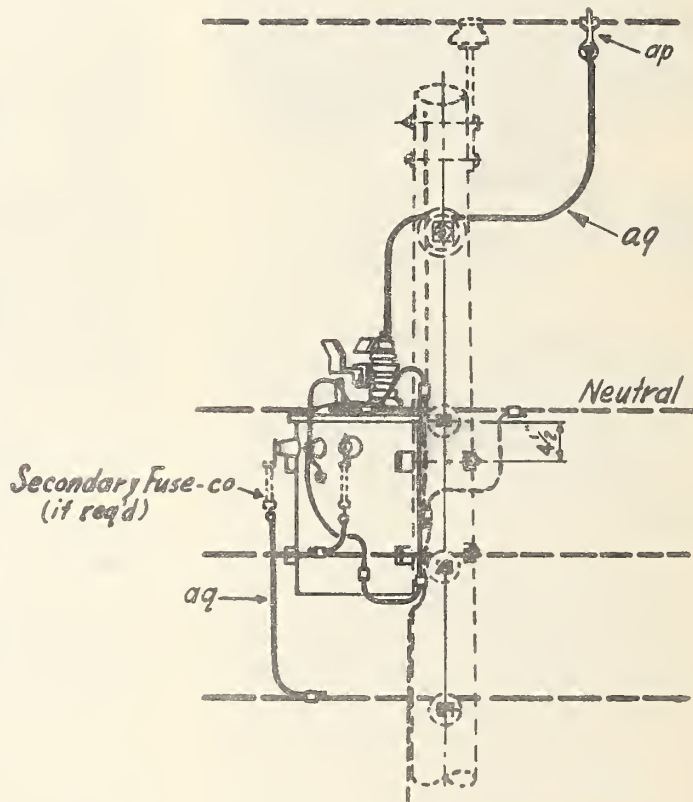
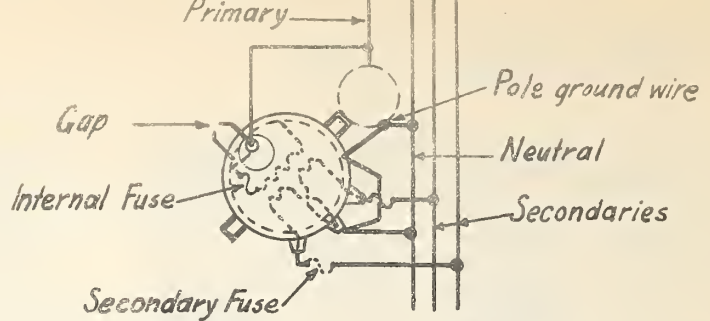
General Consideration

1. If in planning live line work, it is found necessary to place the workman in a hazardous position to install the live line equipment, should the plan be changed and the work done cold?
2. If an unsafe work practice has been used several times without accident is that any positive assurance that the next time it is used no accident will result?
3. Do accidents just happen or are they caused?
4. Are there any jobs on a rural system which cannot be done safely?





ELEVATION



SIDE ELEVATION

ITEM	No Req'd	MATERIAL	ITEM	No Req'd	MATERIAL
a	1	Insulator, pin type	ap	1	Clamp, hot line, tap assembly
c	2	Bolt, machine, $\frac{5}{8}$ " x req'd length	aq		Leads, #6 S.D. Copper or equiv.
d	4	Washer, $2\frac{1}{4}$ x $2\frac{1}{4}$ x $\frac{3}{16}$, $\frac{13}{16}$ hole	dd	1	Adapter, insulator $\frac{5}{8}$ "
n	1	Bolt, double arming, $\frac{5}{8}$ " x req'd length	an	1	Transformer, coordinated conventional with internal fuse and double gap
p		Connectors, as req'd.			

V. PRIMARY, 1-PHASE 2-WIRE, NEUTRAL GROUNDED
CONVENTIONAL TRANSFORMER WITH INTERNAL PRIMARY FUSE AND
DOUBLE GAP (SECONDARY FUSES OPTIONAL) AT 0° TO 5° ANGLE

Scale: $\frac{1}{2}$ "=1'-0"

Date: June 9, 1948